

# CROSSSECTION



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## Annual Meeting 2009



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## LAKE COUNTY'S UNIQUE SOIL CHARACTERISTICS

MATT SCHARVER, RESOURCE PROTECTION SPECIALIST

Hodgepodge is defined as a mixture of dissimilar ingredients; a jumble. If I had to choose one word to describe Lake County soils, it would be 'hodgepodge.' A jumble indeed, just as the great peoples of this nation, our soils are a reflection of the melting pot metaphor. Formed through the millennia our soils were reborn during the tumultuous ice ages that brought sand, silt, clay, organics and glacial erratics to the southern shores of Lake Erie from Canada. Lake County's 40 major soil types run the gamut of physical, chemical and biological properties.

Soil is the foundation on which healthy, sustainable societies are built. From the earliest days Lake County's soils provided bountiful resources for native peoples who hunted and gathered across this landscape. When the European explorers came into Northeast Ohio, ship building and bog iron industries were established thanks to the ability of our soils to produce abundant hardwood forests and peat from which iron ore was processed. Farmers capitalized on the rich soils and Lake County became the onion and celery capital of the U.S. for a time. Born from our great soils are the still thriving nursery industry and now the expanding viticulture industry which probes Lake

County's soils for their grape growing potential. Local growers bring their robust and healthy fruits and vegetables to our local farmer's markets thanks in part to our prime soils. Once again, we are turning to our soils and asking them to perform their magic as they cleanse our polluted urban storm water runoff. And soon we may be soliciting our soils to help sequester our carbon and other greenhouse gases in efforts to control our climate and clean our air for generations yet unborn. As you can see we are deeply indebted to our soils, and we will continue to be into the future.

To learn more about the soils on your property go to [www.lakegis.org](http://www.lakegis.org) and locate your property. Click the 'Environmental' box under the Layers tab. A 'Soils' box will appear, click the box and a color coded soils layer will be displayed over your property. Soils map units will appear such as CtA, Kf or MhB among others. For a summary of soil characteristics go to our website at [www.lakecountyohio.gov/soil/Ecology.htm](http://www.lakecountyohio.gov/soil/Ecology.htm) and click on the box listed 'Soil & Rock'. There you will find corresponding soil map units with written descriptions of the soil properties.

## WHAT IS SOIL?

BETH LANDERS, EDUCATION COORDINATOR

We all know what soil is, don't we? Or do we? Sure, it is the brown stuff under your lawn, but what is going on down there? What exactly is in soil? And how does soil composition affect you? Soil is composed of mineral particles, dead plant material, and an ecosystem of soil microorganisms. Each of these traits helps to determine the productivity and behavior of soils.

The mineral component of soil dictates the soil texture and how water behaves in that soil. Mineral particles come in three sizes—sand, silt and clay. Sand particles are the largest, and impart a gritty texture on soils. In Lake County, sandy soils occur along the old beach ridges, and tend to follow the ridge roads. If you live along North Ridge, Middle Ridge, South Ridge, River Road, or Johnnycake Ridge, you likely have sandy soils. Some of the older houses in these areas don't even have downspouts, since water soaks into the soil so quickly. At the other end of the

(Continued on page 5)

## SPECIAL(TY) AGRICULTURAL ASSETS

MAURINE ORNDORFF, AGRICULTURAL PROGRAMS TECHNICIAN

What's so special about Lake County? Why did we have a combined agricultural output of \$88.3 million in 2007 and rank first in the state for nursery, greenhouse, floriculture and sod production, second in grape production and eighth in fruits, tree nuts and berries? Why do we have a viticultural industry that, combined with Ashtabula and Geauga has an estimated annual output of \$15 million and a ripple effect that adds \$35.47 million to Northeast Ohioan's income?

We are blessed with natural resources- fertile, friable soils and an adequate water supply, geography- a proximity to Lake Erie and to the Cleveland Metropolitan area, and topography- sandy beach ridges and the deep gorge of the Grand River Valley.

The majority of the nursery operations are located in the Eastern part of the County within the lake plain region and along the ancient beach ridges of former Lake Erie shorelines that are now known as State Routes 20 and 84. Why? Because these soils are higher on the landscape, are sandy and gravelly and generally have good internal drainage. They warm earlier in the spring than heavier, wetter soils that are found on the flatter, low-lying parts of the landscape. These heavier soils composed of silts and clays formed as lacustrine (formed at the bottom or along the shore of lakes) deposits left by the glaciers. A warmer soil allows growth to start sooner and extends the growing season.

Grapes will tolerate the more poorly drained soils, though artificial drainage will help increase yields and extend vine life. Our viticultural industry is more an effect of our geography. We've all heard about the Lake effect weather patterns, but may not really understand what the presence of Lake Erie on our north shore actually does. A large body of water warms and cools more slowly than a land mass. Sailors notice this on a daily basis. In the summer, the land cools off during the night and heats up during the day, while the Lake temperature remains fairly constant. This warming and cooling effect causes a reverse in the wind patterns. A good off-shore breeze can be counted on for a nice afternoon sail!

On a seasonal basis, the Lake protects the vineyards from early spring frost damage because it holds its icy cold temperature longer than the land, and vines close to the Lake remain dormant longer than those farther inland. They start growing usually after the danger of frost has passed, although this year several vineyards were badly damaged by freezing temperatures that came late. The growing season is extended in the fall because the Lake remains warm longer than the land, which allows nearby vineyards to bask in the stored heat, giving them time to develop more flavor and sugars in the fruit. Northeast Ohio has the longest growing season in the state, with 200 frost-free days, because of the Lake.

The topography of the Grand River valley also creates beneficial air movement patterns. It allows the colder, denser air to drop and drain away from the land. This drainage of cold air protects the vines from frost damage at both ends of the season. Vineyards that are not located within the "air shed" of the Grand River valley have erected wind machines to mechanically move the air to provide protection from freezing.

Our proximity to the Cleveland Metropolitan area has caused development pressures over the decades following World War II because the qualities that make Lake County well suited to specialty agricultural crops also make it appealing for development. However, the nearby urban and suburban markets can ensure the survival of our agricultural industries as long as our communities plan for growth, and protect the special assets that have caused Lake County to be a leader in specialty crop production.

## HISPANIC GROWERS PROJECT *IN THE GROUND*

Lake SWCD received a grant this spring from the Center for Farmland Policy Innovation (CFFPI) through its Farmland Protection Partnership Program to get our Hispanic Grower project off the ground— or *in the ground*, after two years of planning. The grant was matched by the Ohio Department of Agriculture's Ohio Rural Rehabilitation Program. CFFPI is a part of the Ohio State University Department of Agricultural, Environmental, and Development Economics. The grant program is designed to fund demonstration projects that promote community-based agricultural economic development, which may then be replicated across Ohio.

The project is a two-year pilot to help Hispanic farmers start farm market businesses in Northeast Ohio. About 8,000 Hispanics live in Lake and Ashtabula counties; many of them are immigrants from rural Mexican communities with farming backgrounds. This project will strengthen the local farm market economy by making fresh varieties of cultural produce available and by supplying a greater volume of local produce to our Farmers' Markets.

We are working in collaboration with Western Reserve RC&D, Veronica Dahlberg, Director of Hispanas Organizadas de Lake y Ashtabula (HOLA), Parker Bosley, a local foods advocate and Board member of Innovative Farmers of Ohio, Bruce Cormack, of Cormack Market Gardens, who has grown produce for the North Union Farmers' Market for 15 years, and Tom Lix, Director of the Lake Erie College Center for Entrepreneurship. Dr. Michele Egan, Associate Professor of Communication at Lake Erie College, and her student, Leah Cole, will be creating a documentary film on the project.

We will work with five families this year and add five more the second year. We have located land in the community with good soil to grow the produce, thanks to the generosity of one of our local nurseries. We will work with the growers in selecting varieties that are culturally significant, such as varieties of peppers,

*(Continued on page 3)*



## LAKE SWCD KICKS OFF RAIN BARREL WORKSHOP SERIES

This June, Lake SWCD, in collaboration with Lake Metroparks, held the first of many Rain Barrel workshops. Thirty participants constructed 25 rain barrels to take home and also received diverters to install on their downspouts. These rain barrels have the potential to keep 1375 gallons of storm water runoff out of our streams and rivers each time it rains. The rain barrels also reused food-grade barrels that might have otherwise ended up in a landfill.

Rain Barrels are a tool for reducing the quantity of runoff that an urban landscape generates. They collect water that runs off of the roof and redirect it into a storage barrel. Overflow from the barrel is directed back into the downspout. While rain barrels don't necessarily clean up polluted water, they do have the potential to decrease localized flooding from downspouts. As homeowners use the water from the rain barrel they are allowing this rain water to infiltrate into the soils. This will mimic that natural movement of precipitation into the soil.

Rain Barrel workshops are scheduled for August and September, and more will be scheduled for the spring. If you would like to build a rain barrel, go to <http://www.lakemetroparks.com/programs/cat/Adults/> and look for the "Build a Rain Barrel" workshop.

If your garden club, homeowners association, or service group would like to schedule your own rain barrel workshop, contact Beth Landers at 440-350-2033 or via e-mail at [blanders@lakecountyohio.gov](mailto:blanders@lakecountyohio.gov) for details. Look for rain barrels to appear at Penitentiary Glen and Lake Farmpark, as well as your neighbor's yard.

(Continued from page 2) *HISPANIC*

chilies, beans, cilantro, purslane and tomatillos. Training in business management and record keeping will be provided to help the growers develop successful businesses. Assistance will be provided to help the growers locate potential markets to sell their produce, including Farmers' Markets, grocery stores and restaurants. The second year we will extend the program to create value-added products such as salsas, dried beans and dried peppers. Our goal is for the growers to become self-sustainable and independent by the second year.

The program will implement a "pass it on" policy, similar to one created by Heifer International, whereby veterans of the program pass on their knowledge and seeds to new growers, thereby multiplying the impact of the program, and carrying on the work of the consultants.

This project will help further our goal of agricultural sustainability by growing more farmers, putting more of our land into cultivation of food, increasing the varieties sold at area markets, attracting more customers and making our markets more dynamic, which will help *all* of our produce growers and consumers alike.

PARTICIPANTS IN THE FIRST YEAR OF THE HISPANIC GROWERS PROJECT PLANT PRODUCE CROPS IN A PLOT PROVIDED BY A LOCAL NURSERY. THESE GROWERS WILL RECEIVE ASSISTANCE IN GROWING AND MARKETING PRODUCE VARIETIES THAT ARE A PART OF THEIR CULTURE.



YOU'RE INVITED!  
LAKE COUNTY SOIL & WATER  
CONSERVATION DISTRICT 63RD ANNUAL MEETING  
TUESDAY, OCTOBER 20, 2009  
GRAND RIVER CELLARS WINERY  
5750 MADISON RD. (RT 528), MADISON 44057

6:00—7:30 PM

Polls open

6:00 PM

Election of Board Supervisors

Social hour— appetizers & cash bar

Wine Cellar tours!

7:00 PM

Marinated Chicken & BBQ Ribs Buffet

7:45 PM

Business meeting

8:45 PM

Recognition & awards

9:00 PM

Chinese Auction & Door prize giveaway

**NEW THIS YEAR!**

THE ENTERTAINMENT FOR THE EVENING WILL BE  
WINE CELLAR TOURS.

A CHINESE AUCTION WILL PROVIDE THE UNIQUE OPPORTUNITY TO WIN  
PRIVATELY-GUIDED NATURAL RESOURCE TOURS.

Great Door Prizes courtesy of  
Lake County Nurseries and Businesses

***RSVP no later than Tuesday, October 13, 2009***

Lake SWCD  
125 E. Erie St.  
Painesville, OH 44077  
440-350-2730

Yes, I WILL ATTEND! ENCLOSED IS MY PAYMENT OF \$20 PER PERSON  
PAYABLE TO LAKE SWCD

RESERVATIONS ARE PRE-PAID ONLY; TICKETS WILL BE HELD AT THE DOOR

NAME \_\_\_\_\_ NAME OF GUEST(S) \_\_\_\_\_

ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_

PHONE \_\_\_\_\_ EMAIL \_\_\_\_\_

TOTAL # ATTENDING \_\_\_\_\_ VEGETARIAN DINNER? \_\_\_\_\_

(Continued from page 1) *WHAT IS SOIL?*

size spectrum is clay. Clay is the smallest soil particle, and imparts a floury texture to dry soil and a sticky texture to wet soil. Since clay particles are so small, they pack closely together. On top of this, some clays are platy—they are flat layers instead of round particles. These features combine to resist water infiltration. If you have clay soils, chances are you occasionally have standing water in your yard, and your basement is sometimes wet. Many people in Lake County will tell you they have clay soils, however, the soil maps will show that this is incorrect. The confusion comes because it only takes a small amount of clay in the soil to make it feel clayey. Silt is an intermediate size of mineral particle. It is smaller than sand but larger than clay. A wet, silty soil is moldable, but not sticky. In the real world, there are hardly ever pure sand soils or pure silt soils. In reality, we deal with loams—soils that are mixtures of particle sizes. A well-mixed loam is actually the best type of soil for plant to grow in. Clay soils hold water too long, leading to root rot, and sandy soils dry out too quickly, causing plants to wilt.

Another important part of soil is decaying organic material, or humus. Humus provides a food source for plant roots and soil micro-organisms. It is a natural fertilizer. Humus also increases the capacity of the soil to hold water. If you mulch your flowerbeds, you are mimicking the natural layer of organic material that develops when people don't mow or rake everything in sight.

The final soil feature is an ecosystem of fungi, bacteria, micro-organisms, and macro-organisms. This soil food web provides many valuable services. Some bacteria convert nitrogen into forms that are useable by plants. A type of fungus called mycorrhizae grows on plant roots, aiding the plant in drawing in nutrients and water from the soil in exchange for receiving energy from the plant. One tablespoon of soil hosts more living organisms than there are people on Earth. These organisms, from the common earthworm, to pseudoscorpions, to microscopic mites break down the dead plant materials into soil nutrients. Overuse of pesticides can degrade soil quality and productivity by disrupting this ecosystem. If you have a persistent problem in your lawn, consider the possibility that you have used too many chemicals.

Now that you know what makes up a healthy soil, you understand the value of protecting it. It takes over 1000 years to develop one inch of topsoil. The best way you can protect soil is to keep things growing in it. Plants cushion the impact of raindrops, slowing them down or stopping them before they hit the soil. This helps prevent compaction of the soil surface, and also increases the amount of rainwater that soaks in rather than running off. Plant roots also help mitigate soil compaction and, as they die back every year, create channels that allow air and water deeper into the soil column. Another way you can protect your soil is to minimize compaction by vehicles, the mower, and even foot traffic. A healthy forest soil is springy and resilient; too often our suburban soils are hard, unforgiving surfaces. Finally, you should look critically at the types and amounts of products you use. Do you really need to kill every last grub? Is there a better way to do it than with a grub killer that is also going to kill off beneficial soil organisms? Is that fungicide going to stunt and yellow your grass because it kills the symbiotic fungi on the grass roots? A wise steward of the land will minimize their use of products with glitzy marketing and instead seek to achieve a natural balance of this subterranean ecosystem.

## STORMWATER SUPER-SOILS

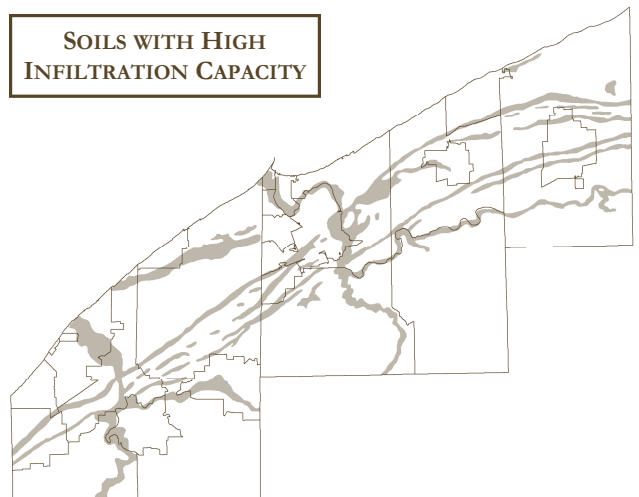
PAUL BOWYER, STORMWATER SPECIALIST

One of the primary goals of today's new stormwater management strategy is to get stormwater runoff out of pipes and back into the ground (soil) wherever possible. Lake County's sandy beach ridge and lake plain soils are super for storm water infiltration.

In a traditional stormwater system, rain water flows through pipes directly to streams and lakes. Having our storm water runoff infiltrate back into the ground, rather than in pipes, has several beneficial effects. It reduces flooding (reducing the volume of water in a stream immediately after a storm), recharges groundwater supplies, sustains stream and river base-flows during dry weather, and provides filtering of contaminants picked up by the stormwater. All of these improve our water quality.

The soil type present at a site dictates how stormwater will infiltrate back into the ground. While many soil types in Lake County are suitable for infiltration practices, some require careful engineering of the stormwater infrastructure or modifications to the soils. Ancient Lake Erie beach ridges that traverse Lake County and are composed primarily of sands and silt and have a naturally high infiltration rate. These unique sandy soils are perfectly suited for infiltration stormwater practices. Residential storm water practices such as rain gardens work superbly in these areas. The small map below shows the general location of these high-infiltration soils, and they are also easily identified on road maps, because the 'ridge' roads – the major east-west roads in Lake County – run along them. If you live in one of these areas, take advantage of your super soils and consider disconnecting your downspouts from the storm sewer system and redirecting the water into the ground via a rain garden or even simple splash blocks. If you don't live in one of these sandy soil areas, stormwater infiltration practices are still possible, but it will take a bit of planning or some modification of the soil. If you would like to learn more about your soils and stormwater management, contact Paul Bowyer at the District.

SOILS WITH HIGH  
INFILTRATION CAPACITY



Return Service Requested



Recycled Paper

## WHO WANTS TO BE A CONSERVATIONIST?

Erosion is a process that can create and destroy soils. To make soil, you need eroded bedrock; however erosion of soils can damage fields, lawns, and streams. What do you know about erosion?

- 1) Water can cause erosion on soil surfaces. Splash erosion happens when:
  - A) Wave action occurs along the shore of a lake or stream
  - B) A droplet hits a bare soil surface, moving soil particles
  - C) Rain is deflected off of hard objects
  - D) Vegetation is not established
- 2) Bare soils can fall victim to eolian erosion, which is caused by:
  - A) Wind
  - B) Burrowing animals
  - C) Frost heaving
  - D) Human actions
- 3) Regardless of the erosion agent (wind, animals, freeze/thaw, water, etc.), which of the following affects erosion rates:
  - A) Slope
  - B) Temperature
  - C) Particle size
  - D) Vegetation
- 4) Probably the best way to protect soils from erosion is to:
  - A) Use loose rock to hold soil in place
  - B) Terrace your lawn so that all surfaces are level
  - C) Plant or maintain vegetation
  - D) Install silt fence
- 5) Soil erosion can decrease:
  - A) Water quality
  - B) Air quality
  - C) Public health
  - D) Food production capability



Answers:  
1. B and D  
2. A  
3. A, C and D  
4. C  
5. All

## LAKE COUNTY SOIL & WATER CONSERVATION DISTRICT

125 E. Erie St., Painesville, OH 44077

•440-350-2730 (main number) •FAX 440-350-2601

Toll-free •428-4348 ext. 2730 Madison/Perry

•918-2730 Cleveland/Western Lake County

•1-800-899-LAKE ext 2730 outside Lake County only

Office Hours: Mon.-Fri. 7:30 am-4:00 pm

•E-mail: [soil@lakecountyohio.org](mailto:soil@lakecountyohio.org)

•Web site: [www.lakecountyohio.org/soil](http://www.lakecountyohio.org/soil)

PAUL BOWYER, Stormwater Specialist	350-2092
PAM BROWN, District Secretary/Treasurer	350-2041
DAN DONALDSON, District Administrator	350-2030
CHAD EDGAR, Urban Stream Specialist	350-2032
BETH LANDERS, Education/Information Coordinator	350-2033
MAURINE ORNDORFF, Agricultural Programs Technician	350-5863
MATTHEW SCHARVER, Resource Protection Specialist	350-2031
AL BONNIS, District Conservationist, NRCS	437-5888
JOHN NIEDZIALEK, Western Reserve RC&D Coordinator	350-2034

### BOARD OF SUPERVISORS

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### MEMBER OF:

- American Farmland Trust
- Lake County Farm Bureau
- Nursery Growers of Lake County Ohio
- National Association of Conservation Districts
- Ohio Federation of Soil & Water Conservation Districts

**AN EQUAL OPPORTUNITY EMPLOYER:** All Lake SWCD and USDA programs and services are available without regard to race, age, gender, national origin, political beliefs, color, religion, disability, sexual orientation, or marital or family status.

The public is invited to attend Lake SWCD's monthly Board meetings, held the fourth Tuesday of the month at 4:00 pm at 125 East Erie St., Painesville. Meeting announcements appear under the public agenda in the News-Herald and on the Lake SWCD website. Please call in advance to let us know you will be attending.